

# When large language models meet personalization: perspectives of challenges and opportunities

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## Abstract

The advent of large language models marks a revolutionary breakthrough in artificial intelligence. With the unprecedented scale of training and model parameters, the capability of large language models has been dramatically improved, leading to human-like performances in understanding, language synthesizing, common-sense reasoning, etc. Such a major leap forward in general AI capacity will fundamentally change the pattern of how personalization is conducted. For one thing, it will reform the way of interaction between humans and personalization systems. Instead of being a passive medium of information filtering, like conventional recommender systems and search engines, large language models present the foundation for active user engagement. On top of such a new foundation, users' requests can be proactively explored, and users' required information can be delivered in a natural, interactable, and explainable way. For another thing, it will also considerably expand the scope of personalization, making it grow from the sole function of collecting personalized information to the compound function of providing personalized services. By leveraging large language models as a general-purpose interface, the personalization systems may compile user's requests into plans, call the functions of external tools (e.g., search engines, calculators, service APIs, etc.) to execute the plans, and integrate the tools' outputs to complete the end-to-end personalization tasks. Today, large language models are still being rapidly developed, whereas the application in personalization is largely unexplored. Therefore, we consider it to be right the time to review the challenges in personalization and the opportunities to address them with large language models. In particular, we dedicate this perspective paper to the discussion of the following aspects: the development and challenges for the existing personalization system, the newly emerged capabilities of large language models, and the potential ways of making use of large language models for personalization.